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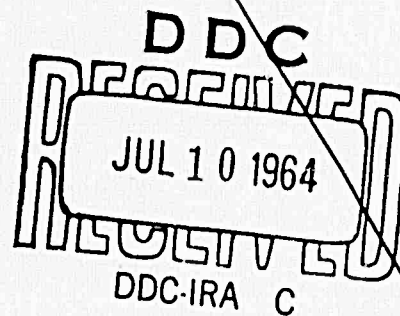


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CIVIL DEFENSE IN THE UNITED KINGDOM

Prepared for:

DEPARTMENT OF DEFENSE
OFFICE OF CIVIL DEFENSE
WASHINGTON 25, D.C.



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Prepared for:

DEPARTMENT OF DEFENSE
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ABSTRACT

This report analyzes British civil defense experience that may be helpful to the U.S. civil defense program. One notable aspect is British emphasis on recruiting and training of a large civil defense cadre, comprising about 1% of their total population. This type of force, essential to operational effectiveness in an emergency, has been built and maintained by various techniques applicable to the United States.

Many other relevant doctrinal and policy aspects are also discussed. For example, because the British feel strategic warning of attack is likely, they are planning for possible evacuation from cities. Although they have not started a shelter program, the over-all level of their civil defense efforts is at least twice as great as that of U.S. efforts.

FOREWORD

This is one of four final reports in a study of European civil defenses. The purpose of this portion of the study was to analyze British experience that may be helpful in the development and operation of the U.S. civil defense program. The study was conducted by the Management Sciences Division of Stanford Research Institute for the Office of Civil Defense, as a part of Contract OCD-OS-63-184.

Grateful appreciation is expressed for the information provided by Mr. H. A. Sargeant, CB, OBE, Chief Scientific Adviser, Home Office; Mr. E. Leader-Williams, Mr. D. T. Jones, and Dr. J. Macauley, Scientific Advisers, Home Office; and many other British officials with civil defense responsibilities.

Rogers S. Cannell served as project leader of the European civil defense study. Principal investigators of this portion of the study and authors of this report were Harvey L. Dixon and Kendall D. Moll. Contributions to the research were made by Nicholas Rosa and Gretchen Garrison.

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I INTRODUCTION

This report is a partial product of a research contract "to determine what elements of civil defense operations doctrine in various European countries may be applicable to civil defense emergency operations planning in this country, and how they might be used to strengthen our emergency operations planning."

In the course of this project, staff members of Stanford Research Institute visited during October 1963 with civil defense officials in the United Kingdom, France, Germany, and Switzerland. The study team placed greatest emphasis on investigating those aspects of the civil defense programs that have proved successful, although the experiences of each of the nations in attempting certain programs that have not proved successful were also of interest.

Each nation has developed several interesting features, as well as a simple balance among the various features in its civil defense program. The discussions were directed toward obtaining the greatest amount of useful information regarding the different features and their effects on the programs.

This report is concerned with the civil defense program in the United Kingdom. It is based on discussions with officials in several branches of the British government concerned with various aspects of civil defense. (The contacts made during the study were identified in a previously published report.*) Various civil defense documents were also obtained.

In this report, brief explanations are provided of the organization and major activities of the British program. Those findings that appear to be particularly relevant to U.S. programs have been identified in the summary (Chapter II).

* Background on the Factors Contributing to the Growth of European Civil Defense, Stanford Research Institute, Menlo Park, California, December 1963.

Chapter III contains a short history of the British civil defense program to give a background for later chapters and to identify British experiences that appear to have had a major bearing on current British civil defense policies. Chapter IV contains a brief description of British civil defense doctrine; civil defense missions and the functions necessary to carry out these missions; the responsibilities assigned to the national, regional, and local levels of government; and finally, the organization that has been chosen to carry out the assigned responsibilities.

Chapter V is devoted to staffing and training for the accomplishment of selected civil defense tasks. Chapter VI concerns the public information program. Chapter VII provides data regarding the financial support accorded civil defense activities in the United Kingdom.

II SUMMARY

British civil defense efforts have a substantially longer history than do U.S. efforts. As explained in Chapter III, civil defense activity in Great Britain goes back before World War II, and British experience in the war has played an important part in shaping their current civil defense program. Their present policies merit serious attention because, more than in any other country, organization and doctrine have evolved from actual operational experience.

British officials consider deterrence to be an important factor in civil defense strategy, but they do not regard natural disasters or large-scale accidents as sufficiently common in Britain to justify their civil defense program. In emphasizing the civil defense role in deterrence and de-emphasizing its role in natural disasters, they take a viewpoint opposite to that of many current American civil defense policy makers. Yet with these arguments they have succeeded in maintaining a higher level of civil defense activity than we have in this country. Their relative success indicates that civil defense need not be tied to natural disaster relief. It apparently can be adequately justified by its role in defense and deterrence.

The British generally accept the principle that organization and leadership in civil defense must originate with the national government. Officials feel that the two keys to national leadership are structural and financial. Over the years, the British government has increased its support to local jurisdictions until now it subsidizes 80% of all local civil defense activities--in contrast, the U.S. government provides less than 50% support for local civil defense activities. British financial support is buttressed by a law requiring certain civil defense actions by local governments; the "stick and carrot" together provide the British with much more widespread and uniform local civil defense efforts than the United States has (see Chapter IV).

Local participation and local support have proved so important to the success and stability of the entire program that the British government is increasingly emphasizing methods for working with and through local authorities. It has started revising the regional boundaries of civil defense and related government agencies to make them follow local political boundaries more closely, since it has found that local operations

can be conducted much more effectively under this type of geographic organization. It has also tended to consult local jurisdictions on policy and procedural questions more frequently than it did in the early days of the program, because it found that one-way communications (too much as well as too little) tended to create confusion and controversy. If relationships in this country are analogous, U.S. civil defense officials will also find local coordination increasingly important as the program becomes more operational.

In Britain, civil defense has traditionally been lodged in the Home Office rather than in the defense agencies. This organizational arrangement appears to work very well from the standpoint of budgetary stability, internal governmental coordination, and local relationships. However, the United States has no agency comparable to the Home Office, which is the oldest and pre-eminent British Cabinet office. Therefore, the advantages or disadvantages of reorganizing U.S. civil defense under a civilian agency cannot be directly compared to British experience.

Because of their prevalent belief in the likelihood of lengthy "crisis" warning before a nuclear attack, British government officials feel that a mass evacuation plan would be useful in enough possible circumstances to warrant resuming evacuation planning efforts. Their faith in the feasibility of evacuation planning is particularly impressive in view of (a) their World War II experience in handling actual evacuation movements, and (b) their relatively heavy population density. Nevertheless, their evacuation planning is based on the apparently unanalyzed assumption that crisis warning is likely. In contrast, planning for evacuation in the United States was largely abandoned on the apparently un-analyzed opposite assumption, that crisis warning is unlikely. In view of the importance of this question, and the conflicting policies regarding it, the United States and British differences over warning and evacuation policies need further evaluation.

During World War II, the British government attempted to promote private shelter construction, but had little success. The great bulk of the shelter capacity developed at that time was through public efforts. We observe that this same kind of experience has characterized the development of the U.S. shelter program. Currently, the British government is not attempting to promote a national shelter program because it considers such a program to be too expensive and too unwelcome under current conditions of public interest. However, British officials are very interested in U.S. progress in this field and are beginning to follow our lead to the extent of planning a survey of existing fallout shelters.

The British devote a major effort to their volunteer recruitment and training program. They emphasize regular training for volunteers, promote a club-like atmosphere in the local volunteer groups, and provide monetary and other incentives to their personnel. By these means, they have been able to obtain 600,000 active volunteers in the civil defense program. This amounts to approximately 1 percent of the total population, or the equivalent of about 2 million people in the United States. About half of the volunteers are enrolled in the Civil Defense Corps to perform first aid, rescue, welfare, liaison, and warden duties. (Except for the Red Cross and similar welfare organizations, the United States has very few active volunteers of this type.) The next largest volunteer group is the Industrial Civil Defence Service, organized to protect factories and utilities. (This group also is more active than comparable United States organizations.) Other groups include the National Hospital Service Reserve, the Auxiliary Fire Service, and the Royal Observer Corps. The Royal Observer Corps (a counterpart to the now defunct USAF Ground Observer Corps) would man an extensive network of underground observer posts during an emergency to report data regarding nuclear explosives and fallout. All of these operational volunteer efforts are conducted with a considerable degree of success at a fairly small cost. The methods used for recruitment, training, and procedures may be of great potential interest to our own program and are explained in more detail in Chapter V.

Although the British have a proportionately smaller public information budget than is available to U.S. civil defense, they obtain a considerable impact by concentrating their publicity efforts in a relatively short period during the autumn of each year. The publicity campaign is carefully coordinated with local efforts to obtain new volunteers for the Civil Defense Services. It appears successful both in drawing volunteers and in blanketing the country with the civil defense message, as explained in Chapter VI and Appendix B.

An information booklet advising individuals on protection against nuclear attack has been prepared for widespread publication in newspapers, TV, etc., should an international emergency create a sudden demand for information. However, even though the booklet has not yet been widely distributed, it has been severely criticized. On the basis of this, as well as of American experience, it appears that civil defense instructions of the popular type are vulnerable to attack from a wide range of critics. (As a part of this study we are preparing a separate report comparing the British and United States civil defense handbooks, and offering suggestions for future improvements.)

Expenditures for civil defense in the United Kingdom are substantially greater than those in the United States on almost any proportional basis. These expenditures reflect the much greater "grassroots" organization and training activities which are maintained in the United Kingdom. Detailed descriptions of the two budgets are presented in Chapter VII, and selected aspects are compared below.

	<u>United Kingdom</u>	<u>United States</u>
National government CD budgets*	£24.4 million	\$128.1 million
Total national and local CD budgets**	£26.4 million	\$158.1 million
Total as a percent of military budget	1.3%	0.3%
Total as a percent of gross national product	0.09%	0.03%
Per capita costs	£0.50	\$0.83
Per capita in dollars at the \$2.80/£ exchange rate	\$1.40	
Per capita in dollars at \$5.00/£ estimated relative purchasing power	\$2.50	

In summary, the most useful single lesson obtained from this survey stems from the British emphasis on recruiting and training a cadre capable of taking organized measures immediately after a disaster strikes. The British apparently found in World War II that human skills and teamwork were the most basic essentials to a workable civil defense program, and they are now insuring that such a capability will be available if civil defense is ever needed again. In building a comparable human organization, U.S. civil defense leaders can benefit greatly from what the British have developed after 25 years of experience.

* Year ending March 1964 for the United Kingdom and June 1963 for the United States.

** Includes state and/or local expenditures.

III HISTORICAL BACKGROUND

Officially, in the United Kingdom, civil defense is considered to include "the defence of the country by any means, short of military action, against the effects of hostile attack."* Officials consider civil defense to be of considerable importance should the primary reliance upon deterrence be unsuccessful, and in fact, they assert that civil defense aids deterrence.

It is just as necessary that preparations for Civil Defence should be made in peacetime as it is that armed forces should be prepared. These preparations do not imply that war is imminent. Indeed, they are a deterrent to war.*

This argument may be more useful in justifying the program to the British public than it is in the United States because of the experience of the British at Munich. Chamberlain himself admitted shortly after Munich that he had learned a lesson that most Britons would probably still remember:

Our past experience has shown us only too clearly that weakness in armed strength means weakness in diplomacy. . . . It has thrown a vivid light upon our preparations for defence, on their strength and on their weakness. I should not think we were doing our duty if we had not already ordered that a prompt and thorough inquiry should be made to cover the whole of our preparations, military and civil.**

The British experience in World War II has had a significant influence on the organizational arrangements for civil defense, as well as on programs in warning, shelter, evacuation, recruitment and training, and industrial civil defense. The most successful of the World War II civil defense activities have been retained and adapted to nuclear conditions.

* British training leaflet, Gl, "Introduction to Civil Defence," undated.

** Quoted in John F. Kennedy, Why England Slept, Wilfred Funk, Inc., N.Y., 1940, p. 197.

As in the United States, in developing their civil defense organization the British initially attempted to place the major burden on local jurisdictions. British local officials found their responsibilities particularly burdensome in the period leading up to World War II because of the lack of a detailed national government policy for many programs. This resulted in a great deal of administrative correspondence and in delayed decisions, which slowed but fortunately did not completely stop progress.

At the same time, local officials objected very greatly to the one-way flow of instructions from Home Office headquarters, which imposed numerous requirements for local plans, fiscal and personnel reports, status reports, and the like, without sufficient assistance or guidance for the tasks required. Nevertheless, the system smoothed out and became well organized by the end of the war. The arrangements for heavy national government subsidy and voluntary local cooperation that were built up at that time are still working smoothly at a greatly reduced level.

Britain's proximity to Communist-held territory (within IRBM range) has had a definite bearing on its civil defense plans. British officials and authorities on strategy generally believe that strategic warning (several hours or days) would probably be available prior to a large nuclear attack. They believe that a large attack could not be mounted by the Soviets without intelligence indicators being available to the British of such an attack. Consequently, their strategic warning doctrine permits planning for fairly lengthy preparatory measures such as evacuation and industrial preparedness.

Even though the British expect substantial strategic warning, their experience in World War II taught them the value of quick response to tactical warning. They have an operational siren warning system with almost universal coverage. Their doctrine growing out of this experience emphasizes the necessity for prompt and widespread tactical warning of either attack or fallout.

The British had substantial experience with shelters in World War II. They found that perhaps their major problem was in providing enough shelters to protect everyone in danger areas, under the wide ranges of attack conditions and population distributions that had to be provided for. Eventually, they found that a national program supported primarily by the national government was needed to fulfill requirements. Much responsibility was given to local and industrial authorities, but reliance on private householders proved to be a poorer option. Local

authorities would generally cooperate if financial inducements were provided and lines of authority were established. Somewhat more coercion was required in the case of industrial, and particularly, business firms, and still more coercion was required to assure cooperation of the bulk of householders, even when full financial support was provided.

Since World War II, the British have not attempted to reinstate a serious shelter program. One recent official document states:

To obtain a high degree of immunity, a shelter below the surface of the ground, preferably inside a house, is required, but to provide specially constructed underground shelters on a country-wide scale would mean the expenditure of such vast resources that it cannot be regarded as a practical proposition. Nevertheless, much could be done by the average householder to provide protection in or near his home, and advice on this has already been given in Civil Defence publications. Plans are in train to supplement this advice.*

Since 1931, the British have considered evacuation to be a potential civil defense measure. Originally, they worried less about how to promote the program than how to prevent panic flight by the population. The Munich crises resulted in large voluntary movements out of London and other major cities, thus tending to confirm the government's fears of panic flight. After the war began in 1939, approximately the same total number of people left the cities as evacuation plans had anticipated--3.5 million--but only 1.5 million of these people were handled through the official program. It is estimated that 2 million people made use of private means of transportation and made their own arrangements for accommodations in the reception areas. The burden on the official system was therefore considerably less than expected, although the results planned for in the official system--removing people from danger areas--were as good as anticipated.

However, the effectiveness of evacuation in saving lives was not rigorously tested because casualties in cities proved to be lower than feared--by a factor of about 10. In the course of time, nearly all city families eventually returned home.

* "Civil Defence in Britain," 3-page paper describing current British civil defense policy, undated.

Provisions for an evacuation scheme were maintained in official plans until the late 1950's. Objections had been raised to such a scheme under modern circumstances, both because of the much shorter warning times expected and because of the dangers of fallout. Although evacuation was dropped for a short period, the government in 1960 announced that the entire evacuation concept was being re-evaluated. After a two-year reappraisal, the British "Statement on Defence, 1962" again endorsed the evacuation policy:

The governments have reviewed dispersal policy in the light of developments in the strategic situation over recent years and have consulted with the local authority associations. They have concluded that, although the circumstances that might precede an attack upon us cannot be foreseen, it is necessary to have available a scheme which could be implemented, if it were thought right to do so, for dispersing mothers and children and other people in the priority classes from major centers of population. The detailed application of the scheme will be worked out with available local authorities.

The British recruitment and training program is based largely on the civil defense program and associated personnel built up during World War II. In World War II, the United Kingdom found that an organization of over 1,800,000 (equivalent to a modern force of 7 million in the United States) was quite useful in the peak attack periods. It also found that relatively large numbers of experienced workers were desirable in order to provide essential continuity and concentration of effort--about one out of five civil defense workers was employed full-time in civil defense duties. However, recruitment and training of qualified personnel required a long period to put into effect. These findings remain in current official British attitudes about the need for large, well-trained forces as a foundation for civil defense programs.

Organization and training of emergency industrial civil defense teams were more tardy developments in British World War II preparedness. Before World War II, industry and commerce (particularly trade establishments) were very backward in organizing for civil defense. However, once the war started, they dug in well. The current situation in the United Kingdom is much like the pre-war environment. Many British companies accord civil defense the same apathetic reception that most U.S. companies do. Only about a quarter of British industry is currently engaged in the full range of recommended industrial civil defense activities and less than one-half has taken any significant steps at all.

IV DOCTRINE, MISSIONS, RESPONSIBILITIES, AND ORGANIZATION

Doctrine

No single collection of statements of doctrine was found by the study team. However, some of the principles that seem to have been accepted as authoritative in guiding the development of the British civil defense program are listed below:

1. A massive nuclear attack could probably not be mounted by the Soviet Union without Britain having some strategic warning.
2. Civil defense is an integral and necessary part of Britain's total defense and is an important factor in deterrent strategy. It cannot be justified by its role in natural disasters.
3. The national government must provide the primary monetary support for civil defense programs, but cooperation and support are required at the local level for the programs to be successful.
4. An effective warning and monitoring system is necessary for protection against fallout.
5. Fallout and blast shelter cannot be provided for the entire population under current circumstances because of the large expenditures required.
6. Geographical and typical wind conditions in Britain make evacuation a sufficiently attractive alternative that plans for evacuation are considered worthwhile.
7. A well-trained civil defense force, including many full-time employees, is essential to a successful civil defense program.
8. Protected facilities and communication systems must be provided to assure command and control in an emergency.
9. Economic recovery is recognized as a particularly critical potential problem for Britain, because of its great dependence upon outside resources.

Missions

As used here, the term "missions" applies to those general objectives that the civil defense system is designed to meet. The preservation of life and property in the case of enemy attack seems to be the key mission toward which British civil defense planning is oriented. The safeguarding of scarce supplies and the vital transportation system needed for survival and recovery is a secondary objective in British planning. Re-establishment of the political and social order is also a natural goal for a country faced with the possibility of nuclear attack, but this is of course further down the planning scale.

To accomplish the missions set forth here, operational objectives must be defined for a number of specific activities. These activities will be referred to here as "functions." Historically, two of the most important functions in the British civil defense program have been shelter and evacuation (see Chapter III).

Shelter

At present, the British government is not attempting to promote a national shelter program. Officials consider such a program to be too expensive and too unwelcome under current conditions of public interest. Furthermore, British studies have indicated that the degree of shelter against fallout in the average British home is considerably better than in the average U.S. home. Nevertheless, some shelter planning activities are being carried out (see Appendix A), and these may be increased as a result of demonstrated progress in the U.S. program.

Evacuation

In spite of the need for long warning time and the other operational requirements of an evacuation plan, the British government feels that such a plan could be useful under enough circumstances to warrant the planning expense. Planning for evacuation can be carried out at relatively low cost compared with the costs of providing shelter and other civil defense preparations. Evacuation is particularly feasible in Britain, where the less heavily populated west coast is less likely to be in the path of fallout. In addition, many of the activities involved in evacuation preparations would be adaptable for other purposes (such as stockpiling of food and planning for emergency feeding), even if a mass evacuation were not carried out.

As a result of the resumption of an evacuation policy after a re-appraisal of its usefulness, the Ministry of Housing and Local Government issued a directive on the subject on October 16, 1962. This directive provided guidelines for local planning of evacuations, voluntary participation by individuals, and coordination by the national government. The British Ministry of Transport was charged with scheduling evacuation movements. Individual evacuees would receive passes indicating that they were members of the class to be evacuated; these passes would specify the mode of transportation, the main departure points, and the day of departure. The passes would not give the destination, and the local authorities in general would not be able to tell the evacuees where the trains or buses were going. However, the passes would serve as identification for billeting rights in the reception area.

Planning is now rather well advanced to remove up to 40 percent of the residents of large cities. The plan is publicly available but it is not being actively promulgated. Actual implementation would be announced only in a period of high tension, during which, it is anticipated, several days might be available for completing the evacuation movement.

Support Functions

The functions of the British Civil Defence Services (the operating agencies in civil defense) have evolved mainly from civil defense activities in World War II. One source* lists the following:

1. Education of the public in lifesaving precautions
2. Rescue of people trapped in damaged buildings
3. First aid and medical care
4. Fire fighting
5. Feeding and care of people who have lost their homes
6. Warning to and control of the population in fallout areas

Other functions beyond the purview of the Civil Defence Services, such as stockpiling resources and provisions for economic recovery, are implicit in the delegation of responsibilities that are described in the following paragraphs.

* "Introduction to Civil Defence," British training leaflet, undated, para. 4.

Table I

CIVIL DEFENSE AND MOBILIZATION RESPONSIBILITIES

Department	Responsibilities
Home Office	General responsibility, including planning, research, higher training (Civil Defence Staff College); technical training (three Central Training Schools); regional civil defense organization; the Civil Defence Corps; Police (including the Special Constabulary); Fire Services (including the Auxiliary Fire Service); civil defense in industry; shelter policy; civil air raid warning system; lighting restrictions; protection against chemical and biological warfare.
Ministry of Health	Hospital, first aid, ambulance, and rest center services; the National Health Services (including the National Hospital Service Reserve).
Ministry of Housing and Local Government	Evacuation, billeting, or rehousing of persons made homeless by enemy action; information centers for the public; disposal of the dead; repairs of damaged houses, demolition of unsafe buildings; maintenance of water supplies and sewage services.
Ministry of Transport	Civil defense requirements in relation to road and rail transport; civil defense schemes for railways, highways, canals, docks, and harbors; maintenance of merchant shipping.
Ministry of Education	Evacuation of school children (in conjunction with Ministry of Housing and Local Government).
Ministry of Works	Technical advice on protection of buildings and on shelter and other construction problems; control of building materials; earmarking of premises for civil defense; Works and Buildings Emergency Organisation.
Ministry of Labour	Manpower questions.
General Post Office	Telecommunications for civil defense and air raid warning systems.
Ministry of Aviation } War Office }	Control of factories producing arms and equipment for the fighting and civil defense services; research establishments.
Board of Trade	Location and dispersal of industry and supplies to shops.
Ministry of Power	Maintenance of gas and electricity supplies, oil installations, and coal mines; civil defense schemes within these industries.
National Assistance Board	Assistance to those suffering hardship as a result of enemy attack.
Ministry of Pensions and National Insurance	Post-raid services in relation to such matters as civilian war injuries, death grants, etc.
Ministry of Agriculture, Fisheries, and Food	Advice to farmers and others on the protection of growing crops, livestock, etc., against the effects of enemy weapons; land drainage in the event of flooding; emergency feeding; storage and distribution of food.

Responsibilities

National Responsibilities

Under the Civil Defence Act of 1948, the over-all organization of civil defense is the responsibility of the national government. The Home Office is the principal ministry charged with civil defense in England and Wales. Other government agencies are assigned civil defense responsibilities in specialized fields related to their peacetime functions. Duties within the government are shown in Table I.

The Civil Defence Services are the operating forces of civil defense. Although they are the responsibility of the Home Office and other national government departments, they are implemented at the local level.

As in the United States, the specialized functions, such as resource allocation and transportation, are distributed to a wide group of government agencies doing related work in peacetime. Some, such as the tasks of the Ministry of Food and Agriculture, are carried over from World War II (the Ministry of Food was created during the war as the agency for allocating food and it was later absorbed by the Ministry of Agriculture). Other functions have been assigned to even newer organizations, such as the nationalized railroad system.

National-Local Relationships

The results of British experience have caused the national government to become strongly conscious of the necessity for working with and through local authorities. Over time, it has achieved working agreements with local governments concerning responsibilities, authority, and fiscal accountability. Recently, the national government has begun to revise civil defense regional boundaries to bring them more nearly into accordance with local political boundaries, since it has decided that the program can be effectively managed only by respecting these local jurisdictions. But the present relationships have not evolved without acceptance by all concerned of the principle that initiative and leadership must originate with the national government. The national government has learned that the success or failure of a particular civil defense policy is determined in large measure by the way in which responsibilities are defined and distributed. The legal authority of and the monetary support given by the national government greatly influence the willingness of local groups to carry out specific functions not related to their normal duties.

Regional Responsibilities

England and Wales were divided into civil defense regions during World War II to provide a level of civil defense coordination and emergency command intermediate between the Home Office and the individual counties. After the war, the regional organization lapsed, but in 1955, the government recognized a clear need to strengthen regional organizations, and therefore appointed eleven Regional Directors of Civil Defence for England and one for Wales. These regional directors correspond roughly to American OCD and OEP regional directors, although their staffs, territorial areas, and resident populations are considerably smaller than those of their U.S. counterparts.

In the event of war, Regional Commissioners would be appointed, as in World War II. They would be given broad powers for the supervision of all civil defense and other wartime emergency activities in their regions. They would assume all responsibility for the national government if communications are cut off. Because of this potential responsibility, the Commissioners in World War II were men of national standing (such as retired generals, prominent Parliamentary or other government officials, academic leaders, etc.), and men of equivalent prestige would be selected if commissioners are appointed again.

Scotland, as a separate part of the Commonwealth, has its own independent civil defense organization. However, except for the fact that this organization reports to the Secretary of State for Scotland instead of the Home Office or other English Cabinet minister, its statutory responsibilities are very similar to those of the Home Office for England and Wales. In Northern Ireland, the civil defense authorities report to the Ministry of Home Affairs of their own government. Their statutory responsibilities are also similar to those of England and Wales.

More recently, "subregions" have been established in the densely populated industrial areas to provide closer coordination where the local authority pattern is complex, and damage from a hydrogen bomb would affect the territory of several local authorities. Where subregions are not established, local authorities cooperate in County Groups to provide coordination below the regional level.

Local Responsibilities

As in World War II, local authorities have been delegated large responsibilities, as follows:

1. Recruitment and training of local divisions of the Civil Defence Corps
2. Organization of fire brigades for civil defense purposes
3. Collection of information about damage and civil defense operations
4. Rescue
5. Public information
6. Evacuation
7. Billeting and refugee care
8. Establishing location and identification centers
9. Ambulance services
10. Identification and disposal of the dead
11. Emergency feeding
12. Emergency water supplies and sewage
13. Building repair and debris clearance
14. Property rehabilitation
15. If authorized by the national government, identification of shelters and planning for their use

Personnel in the volunteer civil defense services periodically train for many of these functions, as described in Chapter V. However, the average local civic official is involved only in occasional training exercises and administrative chores relative to civil defense. Generally, he has not been instructed in such things as how to conduct shelter surveys, or postattack recovery planning.

The British government has had to deal with the same type of occasional local rejection of civil defense plans that the U.S. Office of Civil Defense has encountered in the case of Portland, Oregon, and other

local areas. The British government, however, is empowered to deal with such cases more directly than is the U.S. government. The British Civil Defence Act of 1948 provides that:

If the designated minister (in this case, the Home Secretary) is satisfied that any local authority has failed or refuses properly to discharge any of the civil defence functions conferred on them as a process, he may by order either empower himself to discharge the function in the name of, and at the expense of, that authority, or authorize or require some other authority or person to exercise these functions in the name of, and at the expense of, the authority so failing or refusing.

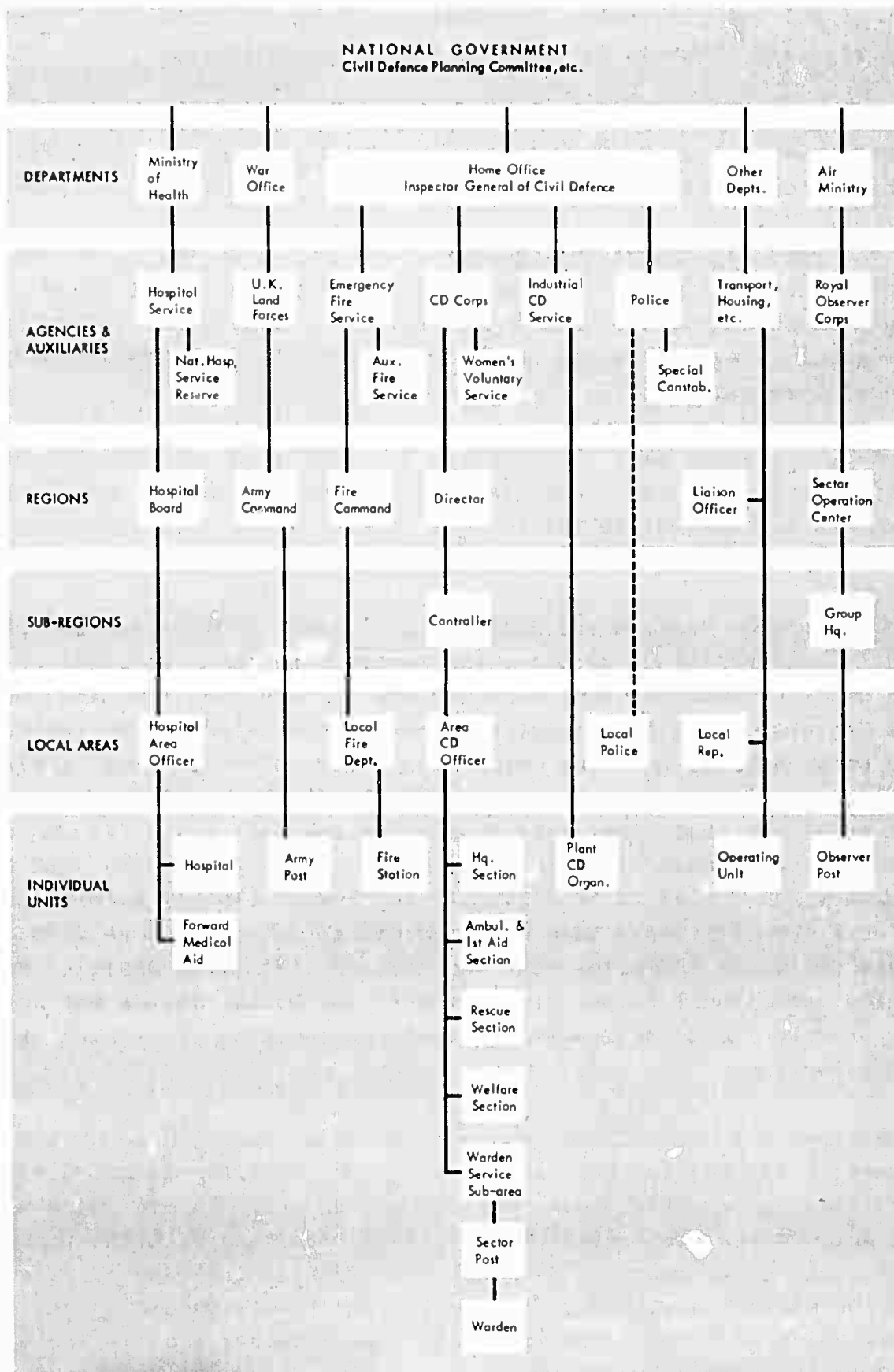
This mandatory provision has occasionally been implemented to overcome local resistance to civil defense. One publicized case occurred in 1954, when the Coventry City Council refused to continue to participate in civil defense planning activities. After a series of attempts to negotiate an agreement with the Council, the Home Office took over Coventry's civil defense functions and billed the city for the full £20 thousand annual cost (the 75-percent local subsidy was withdrawn). Since the program involved primarily the training of local civil defense volunteers, it proved to be easy to run from national headquarters. After a year of this arrangement, the Coventry Council capitulated and the national government retroactively reimbursed the city for its normal subsidy during the period.

This historical mention of the British experience with mandatory local assessments is not offered as an example to follow. The United States would find it all but impossible to fashion such a legal tool. However, the necessity for invoking the mandatory provision of British civil defense law has been relatively rare. Attempts of the national government to elicit local cooperation in civil defense have been generally successful without use of the coercive power. The details of the legal and political mechanisms by which this success has been achieved would be a profitable area for future study.

Organization

The organization of civil defense in Great Britain is shown in schematic form in Figure 1. This figure shows both the vertical chain of command and the horizontal dispersal of responsibilities among the Home Office and other departments. The discussion of organization in this section relates to the vertical chain of command. (Detailed departmental responsibilities were listed in Table 1, and discussions of the various operational agencies are made in Chapter V.)

Figure 1
ORGANIZATION OF BRITISH CIVIL DEFENSE



Source: Stanford Research Institute

Top-level coordination of civil defense planning and research is the task of three committees, of which the most important is the Civil Defence Planning Committee. This committee is composed of representatives of all the government departments concerned, and of the three armed services. Its chairman is the Home Office representative.

The chief civil defense executive officer in the Home Office is the Inspector General of Civil Defence, who is responsible for supervision of the regional offices and for liaison with the military services.

The regional operational headquarters are under the authority of the Regional Directors of Civil Defence, who coordinate planning and civil defense administration within their regions. Actual administration of the regions in wartime would be the responsibility of specially appointed Regional Commissioners.

Army Districts have been revised to correspond with the boundaries of Civil Defence Regions in England, Wales, and Scotland. Army District Commanders maintain close liaison with the Civil Defence Regional Headquarters.

Air Defence Sectors are divided on a different geographical basis, so that coordination of warning, monitoring, and other information between Civil Defence Regional Headquarters and individual Sector Operations Centers of the Air Ministry is more complicated. Line relationships between Royal Observer Corps facilities and other local civil defense organizations are separated for the same reason. British officials sometimes claim that this separation does not result in any degradation in operational control or the timely exchange of data, but at other times they admit that it does inhibit the smooth flow of information. The fact that Army Districts have been redrawn to be coterminous with civil defense districts indicates that the British feel joint districting is of definite operational value. In contrast, the United States has not found joint districting to be feasible, except in isolated cases such as the OCD-OEP Regions.

Subregional Controllers, who are appointed by the Home Office, are responsible for working out plans for rescue and lifesaving operations within their geographic areas, and for seeing that the emergency plans of local authorities are compatible with each other and with the plans of the national government. Subregions are organized in only 18 metropolitan areas; coordination elsewhere is carried out by County Group Controllers who are selected by agreement among the local authorities in the Group.

Local government is represented by the counties and county boroughs. The counties average about the same in size as counties in the United States--approximately 1,000 square miles. County boroughs are the larger cities (over 20,000 population) that are politically independent of the surrounding county, as in the state of Virginia.

The local authority normally entrusts its civil defense responsibilities to a Civil Defence Committee, which may include private citizens. This Committee coordinates its plans with other committees responsible for police administration, fire services, and health. A civil defense officer is appointed in most local areas to assist the clerk of the council in administrative duties. He also performs a number of related civil defense duties dealing with organization, recruitment, training, evacuation, and equipment, etc.

V RECRUITMENT AND TRAINING

The British program for recruiting and training volunteers is interesting both for its techniques and its activity. The British devote considerably more attention to their volunteer organization and training program than do the Americans, and the results are reflected in the considerably greater success of their program. The British emphasize training for their volunteers, promote a club-like atmosphere in the local volunteer groups, and provide monetary and other incentives.

The Volunteer Program

General Policies

Civil defense in Britain depends to a very large extent on volunteer efforts continuing from the successful organization and staff built up in World War II. Over the years a number of people who participated in civil defense during World War II have continued in the civil defense program, and these charter members have been joined by others who have been recruited since the war. Currently, there are almost 600,000 volunteers in the program--about 1 percent of the total population. Volunteer staffs of various civil defense services are as follows:

Civil Defence Corps	296,000
Industrial Civil Defence Service	181,000
Auxiliary Fire Service	14,000
National Hospital Service Reserve	74,000
Royal Observer Corps	<u>16,000</u>
Total	581,000

There were formerly more than 600,000 volunteers on the civil defense rolls, but last year new requirements were imposed for training, and wearing of uniforms was made compulsory. Administrative follow-up of the new regulations resulted in the elimination of 90,000 inactive names from the roles. At the same time, a policy for paying volunteers about £15 per year was begun. As a result of these changes, the general morale and state of readiness of the organization were greatly improved and 35,000 new recruits joined during the year.

Membership in civil defense volunteer organizations is promoted as a public service, but it also has aspects of belonging to a private club, with its own uniforms, team spirit, and recreation rooms. The nominal £15 reimbursement (plus free uniform and traveling allowance) is given to make up for out-of-pocket expenses and to supply a very modest bonus for pin money. A brochure for recruiting civil defense workers ("Vital Civil Defence") points out, "Civil defence is not all work. Many social activities are enjoyed by members and their families." This statement is accompanied by a photograph of a dance at a Civil Defence Training Center. A leaflet advertising the Royal Observer Corps says:

It's fun working for the ROC. There is a good deal of fun and social life to be had in working with the ROC. There is a keen but friendly rivalry between posts and operations room in various contests, and the good companionship of training evenings where observers get to know each other and also meet members of the Royal Air Force and Civil Defence teams. But the highlight of the annual program is the week in which all men and women of the ROC can spend at a summer camp as guests of a RAF fighter station. At these voluntary camps a full-time entertainment officer ensures that observers combine their practical training with a real holiday atmosphere, with dances, concerts, film shows and amusing prize-winning competitions.*

The Royal Observer Corps finds it easier to recruit volunteers than do other civil defense services because of its somewhat greater glamor and nominal affiliation with the RAF. However, its requirements are very similar to those of the Civil Defence Corps and the Auxiliary Fire Service. Other independently recruited and organized civil defense organizations include the Industrial Civil Defence Service, the local constabulary, specialized mobilization functions, and the hospital and casualty services.

Enrollment requirements for the Civil Defence Corps, the Royal Observer Corps, and the Auxiliary Fire Service are quite similar. Members must be over 17 years old (exception: 15 years for men and 16 for women in the Royal Observer Corps). The upper age limit varies according to the job. For example, the upper age limit is 55 for operations room staff and 60 for those serving at observer posts in the Royal Observer Corps. Physical fitness consistent with the job is required, but medical examinations are not customarily given. Applicants are expected to join

* "The Royal Observer Corps," Pub. 349/5/63, Prepared by the Air Ministry Publicity Branch and the Central Office of Information.

for at least three years, and to pass "efficiency tests" within a year of joining. Since civil defense members must promise to devote a certain amount of time to their duties in an emergency, people with military duties are discouraged from joining.

Volunteer Specialists

A number of scientists, economists, managers, and other volunteer specialists are recruited for specific civil defense duties. For example, a Scientific Intelligence Officer is recruited for each headquarters section of the Civil Defence Corps. This officer and his staff are trained in reconnaissance, damage assessment, and fallout plotting. The Scientific Intelligence Officers are generally recruited locally. Regional organizations include about three or four Regional Scientific Advisers who are usually professors or similarly eminent scientists. They are assisted by Regional Scientific Training Officers (generally of university lecturer rank) who would staff the regional headquarters. Scientific officers at the regional level are recruited by the Home Office scientific officers, and are expected to attend a national conference each year. These are voluntary efforts. Examples of other specialists are transportation managers recruited from local managers of truck and bus firms, and agricultural officials recruited from the Ministry of Agriculture and from the ranks of local grocers.

These specialists serve functions similar to those of the volunteer specialists who are sometimes recruited for local and regional assignments in the United States, but they are organized into much more cohesive teams, and trained much more intensively than any such group in the United States. For this reason, they would undoubtedly be more effective in carrying out their expected functions.

Specific Organizations

Civil Defence Corps

Although the Civil Defence Corps is recruited, trained, and equipped by local authorities, it is nevertheless a Crown service, with the Queen as its official head. This arrangement is believed to add greatly to the incentive for joining the volunteer ranks. Each of the 230 local Corps Authorities is responsible for recruiting a division of the Civil Defence Corps. The local authorities are encouraged to organize parades, local demonstrations, house-to-house canvasses, and to distribute government-supplied publicity material on behalf of civil defense. They are encouraged to coordinate their publicity campaigns with the national publicity campaign staged once each year.

Local volunteers carry out their training in their spare time at local training centers, usually for an hour or two each week, and initial training takes from 30 to 60 hours according to the specialty being trained for. Volunteers who do not complete the initial training program within two years are eliminated. A proficiency test is given at the end of the course and students who pass are eligible to join as either Class A or Class B members. Both types of membership involve a three-year term, during which an advanced course is required (50 hours for Class A members and a shorter course for Class B members). Volunteers who do not successfully complete initial training, or who resign from Class A or Class B membership, are eligible for the Civil Defence Corps Reserve. Reserve members may participate in periodic refresher courses and exercises.

Training may be given by a full-time instructor who would probably be a member of the Corps. The instructors must be qualified, either by local instruction or by attendance at the National Civil Defence Schools. At the national level, civil defense training is given at the Civil Defence Staff College and at three Civil Defence Schools, all of which are run by the national government.

The training undergone by Civil Defence Corps members is to equip them to discharge several specialized civil defense functions, which have developed out of the comparable World War II organization. Each of the five sections within the Corps is organized and designed to operate down to the local level, as shown earlier in Figure 1 and described in the following paragraphs:

1. The Headquarters Section, which staffs control centers, is divided into three subsections:
 - a. The intelligence and operations function is to analyze and record information and to prepare necessary instruction, etc., under the direction of the Controller.
 - b. The signal subsection is responsible for providing and maintaining communications (including radio, field cable laying, and messenger service).
 - c. The scientific and reconnaissance subsection has the primary task to advise the Controllers on scientific and technical problems (particularly fallout questions), and also on biological and chemical warfare as may be necessary. They plot and interpret information about radioactive fallout and provide reconnaissance parties where this is required.
2. The Ambulance and First Aid Section has two duties:

- a. The ambulance detachment would evacuate casualties to the Forward Medical Aid Unit, which is maintained by the Casualty Services, and to hospitals.
 - b. First aid parties would render first aid and place seriously injured casualties on stretchers and organize their removal to loading points for ambulance pickup.
3. The Rescue Section is responsible for rescue work and first aid in connection with rescue operations. Members of this section are also concerned with emergency work on demolition with debris clearance, and in peacetime have proven helpful in railroad accidents. Rescue workers are recruited largely from the construction industry. They are trained in three national schools and in a large number of local rescue training grounds (see Appendix A).
4. The Welfare Section is concerned with the care of those rendered homeless or deprived of normal facilities for cooking, sanitation, etc. These duties include work in connection with evacuation, reception centers and billeting, emergency feeding, emergency sanitation, distribution of clothing, first aid (in connection with these activities), nursing the sick, establishing information centers, and other activities of a relief nature.
5. The Warden Service is the link between the Civil Defence Services and the public. Sector Posts, which in large cities are responsible for local damage control over an area about one-half mile square, oversee a number of wardens. Wardens are responsible for local reconnaissance and reporting, for the organization of domestic "self-help" parties, and for the local control of life-saving civil defense services within their post area. They have special responsibilities for measuring and reporting the degree of radioactivity and for control of the public. Traditionally, wardens have been recruited on a one-per-block basis. The problem has not been so much one of obtaining enough recruits as one of tactfully weeding out the socially and psychologically unfit individuals who frequently volunteer.

The Women's Voluntary Services (WVS) is formally recognized as the women's auxiliary to the Civil Defence Corps. Women who are members of the local WVS organizations are enrolled as teams, usually with their own leader and working under a civil defense officer in charge of a section. In the event of an emergency, their duties would be directly coordinated with the Civil Defence Corps and would take precedence over WVS affiliation. Peacetime work of the WVS in welfare activities provides

practical experience to supplement the Civil Defence Corps training. WVS members are particularly active in welfare sections of the Civil Defence Corps.

Casualty Services

There are a variety of medical services incorporated into the overall British civil defense system. The Casualty Services in general are responsible for medical care of the sick and injured.

During World War II, the government found that hospitals and medical associations could not be expected to organize to meet emergency tasks from their own resources; additional measures by the national government were needed. The government now assumes the costs incurred by the Red Cross and other volunteer organizations in working with hospitals and medical associations to establish emergency hospitals and first aid stations. Professional medical practitioners, working nurses, and other medical staffs have formed their own civil defense organization made up of the Hospital Service and Forward Medical Aid Units. The Hospital Service would be charged with maintaining, as far as possible, the facilities and operations within hospitals. In addition, it would make available auxiliary and emergency hospitals where possible. Forward Medical Aid Units, consisting of four medical officers and four nurses (plus 36 auxiliary volunteers), would receive casualties brought to them in the field, give emergency and supportive treatment to the seriously injured, treat the lightly injured, and hold those who could not or need not be sent on to a hospital. Volunteers are organized into a National Hospital Service Reserve of about 74,000 inactive nurses and nursing auxiliaries. The Reserve includes two general groups: professionals already trained, such as nurses and midwives, and volunteers known as Nursing Auxiliary Members, who would be trained in first aid and general nursing skills.

The trained nurses are recruited by hospital authorities and other medical groups for membership in this organization and take a paid annual hospital refresher course of 48 hours. Nursing Auxiliaries are recruited by the St. John Ambulance Brigade and the British Red Cross. They train with these organizations for about two hours per week for 12 weeks in first aid and home nursing. This course is followed by a period of hospital training of 50 hours or more. Volunteer specialists with certain qualifications in first aid, home nursing, hospital administration, etc., are granted training exemptions. A third special nursing auxiliary section is organized for wartime operation with mobile units. Members of

this section must hold car and motorcycle driving licenses. They also receive normal first aid and home nursing training and obtain hospital experience.

Auxiliary Fire Service (AFS)

Fire protection has traditionally been a local function in Great Britain, but during World War II a law was passed to nationalize the fire service in time of emergency. This law would still apply in the event of a nuclear attack. The national government provides a grant to local governments for training the Auxiliary Fire Service. Currently, the AFS numbers only 14,000 men, but active recruiting is being carried out. The program is similar to U.S. auxiliary fire department programs, except that such programs in the United States are locally sponsored. The British program has the obvious advantages of more uniformity in organization, recruitment, training, and objectives, as well as the important advantages (for civil defense) derived from encouraging local officials and fire personnel to accept national and regional, rather than strictly local, operational control.

As noted, AFS groups are recruited and trained locally, generally at the local fire station. Training of volunteers is for about four or five hours a month. As part of the training, Auxiliaries accompany regular fire-fighting brigades to actual fires. Volunteers, as well as regular firemen, are instructed in the basic principles of civil defense.

In wartime, the local fire brigades, along with the AFS, would be brought under central control and formed into a National Fire Service. Part of the personnel and equipment would remain in existing fire stations and would be available to deal with the usual fires, but the major part would be organized into large mobile fire-fighting formations. These formations would be located outside main built-up areas and would be immediately available to operate wherever required by national or regional officials.

Industrial Civil Defence Service

The Industrial Civil Defence Service is organized within the boundaries of industrial facilities by the industry concerned. Some larger firms employ their own civil defense officers, and some pay a small bonus or give training during working hours to their employees. Industrial Civil Defence Service volunteers are not given any reimbursement by the

government; nevertheless, the recruitment and training standards, where industrial organizations exist, are similar to those of the Civil Defence Corps.

Although there are about 13,000 industrial facilities in Britain with over 200 employees, only about 50 percent of these have done anything about organizing an Industrial Civil Defence Service, and only about 25 percent have completely fulfilled the requirements.

Responsibility for the training of Industrial Civil Defence Service volunteers rests with the management concerned, although guidance is provided by the Home Office and assistance is also given by local Civil Defence authorities (for example, by providing instruction and training facilities). The members of the Industrial Civil Defence Service are responsible for guarding and maintaining the resources of their own plants--facilities and personnel--as well as providing assistance to local governments. They could, if needed, be integrated into the local Civil Defence Corps in an emergency.

The Industrial Civil Defence Service is organized into five sections (Headquarters, Warden, Rescue, First Aid, and Fire Guard). The functions of these sections are much the same as the functions of comparable sections in the Civil Defence Corps except that the Fire Guard section would man pre-specified locations with small fire equipment for protection of plant facilities.

Special Constabulary

The Special Constabulary has existed for more than one hundred years to assist regular police forces in time of emergency. Members of this force are recruited and trained by local organizations much as Auxiliary Police are in this country. Their local control prevents them from being a formal part of the national government's civil defense organization. However, government support through local grants and the obvious need for police services in an emergency does in practice give them an acknowledged role.

The minimum age for the Special Constabulary is 18 years; persons with obligations for military service are not eligible. Training for the Special Constabulary normally consists of about 12 sessions of two hours each, followed by a few tours of beat duty. The training course covers instruction on law, traffic control, first aid, basic principles of civil defense, and other training of a normal police nature.

During times of emergency, the local police and constabulary would continue their normal duties in line with the maintenance of law and order, control of traffic, control of aliens, and provision of special assistance and guidance to the public. Along with the Special Constabulary, they would be responsible for certain wartime tasks as well, including:

1. Special measures to maintain internal security
2. Assisting in the control of evacuation
3. Postattack road reconnaissance
4. Assisting in control of the homeless
5. Assisting in public control and countermeasure operations in fallout areas

They would remain under local control even during time of emergency. When on duty in their own police district and in adjoining counties, they would have all the powers, duties, and responsibilities of a constable under the British common law.

Military Civil Defense

The Army is now actively training forces in the civil defense duties of medical aid, guarding essential supplies, lifesaving, and rescue techniques, etc. However, its civil defense duties are contingent upon release from military tasks. Civil defense training is carried out by both the Regular Army and the Territorial Army (reserves). One year in every four, each Territorial Army unit works on civil defense problems, including two weeks at camp plus a training session once a week.

This program has not yet been closely integrated with local operational plans, but during an emergency period, the Army and other elements of the armed services would serve as a potential manpower and equipment reserve for civil defense. Their task would be to support the civil authorities with whatever resources they could spare from military operations. Support would be coordinated primarily at the regional level. Civil defense duties of military forces are primarily related to radio-logical surveying, light rescue, and first aid.

Royal Observer Corps

The Royal Observer Corps (ROC) is independent of the rest of the civil defense organization (see Figure 1). It is nominally an arm of the Air Ministry, having descended from the wartime air observer network.

It is now primarily supported by the Home Office for the role of monitoring bomb bursts and detecting radioactivity. Royal Observer Corps Headquarters are at the national Air Defense Operations Center. From there they can receive intelligence and other warning information, and pass along information from their own observers in the field. There are six Sector Operation Centers (five in England and one in Scotland) manned by the ROC. These Sectors are manned entirely by Home Office and other government employees who volunteer for duty and could therefore be secretly mobilized. They are permitted to train on government time, but are not paid. The Sector Operation Centers control 29 Group Headquarters. Surrounding the Group Headquarters is a network of 1,560 observer posts (for a description of these facilities, see Appendix A). The underground observer posts cover the United Kingdom, separated by distances of from five to ten miles (the average coverage area per post is about 60 square miles).

In addition to the approximate 16,000 volunteer members of ROC, there are about 75 full-time staff members assigned on the basis of two per Sector and two per Group. They are supported by a training staff in the Home Office of about 25 people. Eight of these people are involved in preparing and analyzing exercises (these exercises are designed for all of NATO as well as for Britain). Four staff members conduct the exercises, and the rest of the staff is for general administration of the Observer Corps training school in London and other training activities.

ROC training is carried out with simulated instruments for two hours every two weeks in normal practice. Sector teams work for half a day every two weeks. Four training sessions, two for 24 hours and two for 12 hours, are held each year. Volunteers are expected to spend at least 36 hours per year in training and exercises.

The ROC is the only organization in Britain equipped and trained to report fallout on a national basis. In time of emergency it is to maintain a fallout plot and to observe and report the location and altitude of a nuclear explosion. The visual spotting of aircraft, a responsibility of the ROC, is no longer emphasized.

Specialized Agencies

Managers for specialized functions and their operating units would perform those functions for which responsibilities were outlined in Table I. Managers at the subregional and regional levels are appointed from among qualified government or industry officials whose normal duties are along similar lines. At the local level, managers are generally

named from the ranks of actual managers, so that so far as possible they are controlling their own (or very similar) facilities and personnel. The established policy is to refrain from disturbing normal administrative controls, but to impose government controls on the existing system at the higher level, and to maintain liaison with lower levels. For example, emergency operation of all forms of transport would be under the Ministry of Transport. To best coordinate transportation operations with local functions, boundaries of transportation areas and subareas are being changed to be more in accord with county and local boundaries.

In each region, the Regional Coordinator has responsibility for control of all road transportation. He has assistants who are charged with bus and freight vehicle controls. All of these men have been recruited from management ranks in transportation, and have had practice in test exercises.

Long distance bus transportation is normally organized under large companies or authorities. In this case, the bus organizations link with the civil defense organization only at the regional level and higher. Bus liaison officers would coordinate bus activities with civil defense group or subregional headquarters. The actual operational control of buses, in units of 500 to 1,000 vehicles, would be under the command of bus unit managers who would in turn report to bus fleet managers operating directly from the region.

In the case of trucking, the large number of small operators must be coordinated by controllers at the local level. These controllers are typically appointed from the industry itself. Truck fleets within the local area would be divided into units, which would be operationally dispatched and controlled by Goods Vehicle Unit Managers.

The organization of the nationalized railway system is based on the normal six Railway Regions formed when the railroads were nationalized; the administration of these regions by their normal managers would be left essentially undisturbed. However, civil defense authorities have arranged for relocating the London operating headquarters of the railways and establishing communications between the central operating headquarters and each of the regions. Railway regional liaison officers have been named for duty at regional civil defense headquarters, and have been trained in test exercises at those centers. These liaison officers, as well as the controllers and other emergency operators, would have to man their stations after initial warning. If an attack came without warning, the system could not be easily implemented.

VI PUBLIC INFORMATION

The British officials pay considerably less attention to reaching the general population than to maintaining a cadre organization. Their major public information program is limited to an annual newspaper advertising campaign designed to serve the dual purpose of publicizing civil defense and recruiting civil defense volunteers. Some critics, including the Parliamentary Estimates Committee, feel that more emphasis should be given to public information. In 1963, this committee recommended "that greater use could be made of television, films, and other such media," and "that the Home Office should increase the scale and improve the nature of national publicity in connection with civil defence."* Other critics, such as the Committee for Nuclear Disarmament, object that the public information program is misleading and warmongering. In spite of criticism on both sides, British officials feel that the program is well conceived and that it has been improved in balance and effectiveness in recent years.

Publicity

In previous years, the emphasis in the British publicity program was on the necessity for civil defense in the event of war. However, this method was not sufficiently positive to gain widespread public interest. This year, the government shifted the emphasis toward informing people of the extent of the plans and preparations that had already been made for civil defense in Great Britain. The objective was to make it clear that civil defense activities are real and that there are concrete actions people can take to contribute to civil defense. (Not enough time had elapsed when discussions were held with British officials to be able to gauge a reaction to the new approach.)

This shift in emphasis was motivated partly by the government's belief that the British public has shown an increasing willingness to accept information about civil defense. There still is resistance,

* Estimates Committee, House of Commons, Eleventh Report, Session 1962-63, The Home Office, H. M. Stationery Office, 1963, para. 55.

however, as dramatized by the Committee for Nuclear Disarmament's disclosure of the supposedly secret (actually unclassified) locations of Regional Control Centers. However, the government considers that the net effect of such attentions may be to improve public receptivity to civil defense.

For the most part, the government's publicity on civil defense has never tried to dramatize it or keep it always in the public mind. Instead, the emphasis has been on a yearly autumn recruitment campaign to provide a background for local recruiting campaigns (recruiting is a local responsibility). The government feels that its experience with this type of program is relatively successful. The other objective of the autumn civil defense campaign is to acquaint the general public with the mission, objectives, and activities of civil defense. By concentrating its publicity in a short period each year, the government believes a greater public impact can be obtained.

The latest campaign was kicked off on September 17, 1963, with a series of full-page advertisements in the London Times, Daily Express, Manchester Guardian, and five other leading British newspapers (see Appendix B). These papers have a total circulation of 48 million--almost equal to the total British population. The initial advertisement explained civil defense plans and preparations at some length, emphasizing the humanitarian aspects. Its purpose was to describe the progress in home defense measures, explain the role of civil defense in the nation's overall defense preparations, and improve the image of civil defense in the public mind.

The first advertisement was followed by a series of four quarter-page ads printed in the same papers over a six-week period. These developed some of the specialized aspects of civil defense that were little known or incompletely known to the public. They also carried coupons inviting further inquiry and asked for volunteers.

The costs of the recent fall campaign are as follows:

Newspaper advertising space	£ 60,000
Posters and printed materials	20,000
TV announcements and speakers' handbooks	<u>10,000</u>
Total national expenses	£ 90,000
Local expenses (reimbursed 75%)	<u>70,000</u>
Total national and local	£160,000

Although the recruiting campaign is obviously effective (about 40 percent of all recruits join during the fall), the government has not made comparative effectiveness checks for this distribution of publicity funds. Nevertheless, its officials and advertising agents apparently consider this to be a good allocation of the small public information budget. Approximately the same amount of money has been spent for a number of years on publicity, and the government feels it is about the right proportion of the total civil defense budget of £23 million (0.7 percent plus added expenses for staff salaries, etc.).

Information Booklets

A second method of informing the public concerning civil defense--providing literature to interested people--appears to be well planned, but is not being actively pushed. No household distribution of civil defense literature has been made in Britain, as has been done in Holland and the United States. The British Home Office and the Office of Information have provided a handbook, "Advising the Household on Protection against Nuclear Attack" (Civil Defense Handbook No. 10), but no attempt has been made to distribute it widely. As a matter of fact, there is a charge of 9 pence for public sale of the document, and only 500,000 copies have been issued. The government is not attempting nationwide distribution because it believes the booklet's usefulness will probably decline over time as its technical and procedural contents become obsolete. The government would therefore like to be in a position to revise the booklet from time to time. Inasmuch as most British planning is based on some strategic warning, the government believes that this document could be published in newspapers (as was done with the "Fallout Protection" booklet in the United States) in an emergency.

The Parliamentary Estimates Committee^{*} has reacted to the "Advising the Householder" booklet quite unfavorably. It said:

Your Committee do not feel that many householders will purchase the pamphlet from the Stationery Office, nor do they feel that those who do will be convinced of the effectiveness of the measures proposed therein. In the opinion of your Committee the average householder who reads what to do in the event of imminent nuclear attack, and is told, if driving a vehicle that he should 'Park off the road if possible, otherwise alongside

* Op. cit., para. 56.

the kerb,' will not form the impression that the civil defense measures taken by the Government are of any value whatsoever. Your Committee are anxious that the public should be aware of the steps that are being taken to protect them, and they feel that this pamphlet creates entirely the wrong impression. They therefore recommend that Civil Defense Handbook No. 10 should be withdrawn.

Thus, while the British government differs from the U.S. government in its attitude toward public information booklets, both have been subjected to highly vocal criticisms for their efforts. Apparently, basic civil defense instructions of the popular type are very vulnerable to attack from a wide range of critics, covering the entire spectrum of viewpoints and technical competence. For this reason, thorough care and seasoning in development of the manual is important.

The British policy of preparing a booklet but withholding mass publication until needed may help in assuring a well-considered product. Another means of perfecting such manuals is to make maximum use of "feedback" from the results of previous attempts. Comparisons of the results of different attempts helps, and this has in fact been done in another SRI report to be published shortly.* In that report, the "Advising the Householder" booklet is analyzed and compared page-by-page with the U.S. yellow "Fallout Protection" booklet. British and American farm civil defense information pamphlets are also compared.

Several attractive recruiting brochures have been published for the Civil Defence Corps, the Auxiliary Fire Service, and the Royal Observer Corps. General information of organizational, technical, and procedural interest is concisely covered in "General Information" Pocket Book No. 3, a 32-page booklet for use by all sections of the Civil Defence Corps.

"The Hydrogen Bomb" is another 32-page pocket booklet; this booklet discusses nuclear effects in simplified terms and calls for civil defense volunteers to meet the problems of attack. It is quite a good primer of nuclear effects, and is supplemented by a larger, somewhat more technical 72-page pamphlet "Nuclear Weapons," which covers the same type of material as the U.S. encyclopedic "Effects of Nuclear Weapons." Both of these British documents appear interesting as intermediate-level discussions

* Comparison of British and U.S. Civil Defense Information Booklets, SRI, in preparation.

of the technical aspects of nuclear warfare and civil defense. The United States does not currently have any publication at this level of readability.

Public Lectures

A third method of British civil defense authorities for providing information is the use of civil defense lectures and training courses for the general public. A short civil defense training course provided in night schools, industrial classes, etc., has attracted about 50,000 people. In addition, a standard lecture on civil defense by Women's Voluntary Services speakers has been attended by about one million housewives. Such programs are easy to establish and are carried out almost as a part of regular training operations. However, they are limited, both in coverage and effectiveness. British successes with public speakers and classes appear to be just as modest as U.S. successes.

VII FINANCIAL SUPPORT

In some respects, the British civil defense budget is quite similar to the U.S. budget, but there are some striking differences. A point-by-point comparison of budgetary items of the two countries (see Tables II and III) permits several observations to be made concerning these differences.

1. Great Britain is now spending proportionately more than twice as much as the United States on civil defense, whether expenditure is measured on the basis of actual cost per capita, percent of the military defense budget, or percent of gross national product.
2. The British national government allots a much larger proportion of its civil defense budget to local grants than does the U.S. Office of Civil Defense. However, self-help by local communities is no greater in the United Kingdom than in the United States (per capita civil defense costs supported by local jurisdictions are roughly 15¢ per person per year in both countries). The net result is that the British government subsidizes about 80 percent of all local civil defense activities, whereas the United States government subsidizes less than 50 percent of such activities.
3. Only about one-fifth of the grants by the British government to local areas are for capital items (facilities, equipment); most grants are for a 75-percent subsidy of salaries for essentially all local civil defense workers. In the United States, about one-half of local grants are for facilities (primarily for emergency operating centers) and equipment; the other half is for a 50-percent subsidy of salaries for some local civil defense officials.
4. A somewhat larger percentage of civil defense expenditures are devoted to equipment and supplies in Britain than in the United States. However, most of the British expenses are for reserves of agricultural products, which in the United States are not charged to civil defense. The major U.S. stockpiling effort--the Shelter Stocking Program--has no British counterpart.

5. The United States spends a larger fraction of its civil defense budget on warning and monitoring. This is understandable in view of the much larger areas over which warning must be provided in the United States and of the smaller total civil defense expenditure per capita in this country. Nevertheless, the actual per capita expenditures for warning in the United States are only about two-thirds the British expenditures. The British warning budget reflects expenses involved in the large volunteer Royal Observer Corps program.
6. Although the fractions of civil defense budgets spent for facilities are about the same in both countries, British expenditures are primarily for mobilization facilities for the fuel and transportation industries, and for civil defense training and control buildings; while U.S. expenditures are mainly for fallout shelter spaces provided through the Survey and Marking Program and the addition of shelter spaces to federal buildings.
7. Training efforts also have been oriented differently, although their relative proportion of the total civil defense budgets have been about the same in both countries. In Britain, a large part of the budget goes to supporting the Women's Voluntary Services (women's civil defense auxiliary), which carries out an extensive training program for its members. Although considerable training is carried out in British schools run by the national government, the great bulk of volunteer training is done by the civil defense organizations in local jurisdictions. This training is supported by local grants. In contrast, operational training in the United States is to a large extent conducted in federal schools; this direct effort accounts for most of the federal training budget.
8. British research and development expenditures for civil defense are lower than comparable U.S. R&D budgets. This difference might be attributed to two noticeable differences in the environment for support of research in the two countries. First, British World War II experience established a certain organization, staff, and modus operandi, which are still to a large extent being drawn upon. Therefore, the British may feel less need for studies to revise and adapt their procedures than Americans do for studies to build a new system. Second, Britain and other NATO countries appear to rely to a large extent on U.S. civil defense research efforts, just as they rely on U.S. research for a great deal of the NATO military developments.

9. British public information budgets are lower than U.S. budgets. As indicated in the Public Information chapter, current British policy is to de-emphasize any general approach to try to reach the public, and instead to concentrate upon the training of civil defense volunteers. This policy, however, has been criticized by Parliament (see Public Information chapter).
10. General administrative and regional office costs, as fractions of total cost, are very nearly the same in both countries. Presumably, the larger burden of regional representation imposed by the greater numbers and levels of local jurisdictions and by the larger U.S. land area is balanced in some cases by the "middleman" assistance provided to the federal government by the states. Also, as mentioned in point #2, the United States is proportionately less concerned with local civil defense expenditures, and therefore should have less of a liaison task than the British government does.

A detailed comparison of the various categories of British and American civil defense expenditures is shown in Table II. The table shows the major differences in distribution of budgetary burdens between the two countries: in the United Kingdom local governments pay less than one-tenth of all public civil defense expenditures; whereas in the United States, state and local governments together assume almost one-fifth of the burden. Yet, in spite of the dominance of the national government in British civil defense, and British success in avoiding the fragmentation noticeable in U.S. civil defense responsibilities, local interests are an important influence on policy. Officials there say they are realizing more acutely as time goes on that they must recognize and respect local interests in such matters as administrative areas, paid staffs, and volunteer organizations.

Table III shows some ratios that are commonly used to compare national civil defense expenditures. This table shows that British expenditures are much higher than U.S. expenditures by any comparison measure. While the one-year time spans shown are only directly comparable for a 3-month period (April to June, 1963), the selection of different comparison years would not change the major conclusions. A comparison of the 1962-63 fiscal years for both countries would show British expenditures to be slightly less than indicated relative to American costs, but a comparison of the 1963-64 fiscal years would show British expenditures to be even greater than indicated.

The net result of this comparison of the civil defense budgets in the two countries shows that the British are definitely devoting a

greater proportion of their national expenditures to civil defense. Contrary to the impressions of many casual observers in both countries (possibly obtained through discussions in the public press), British efforts have been proportionately greater than U.S. efforts in recent years, and will apparently continue to be greater unless substantial increases such as for the proposed Shelter Development Program are appropriated by Congress.

Table II

COMPARISON OF U.K. AND U.S. CIVIL
DEFENSE BUDGETS, BY CATEGORY

	United Kingdom Expenditures Year Ending March 1964		United States Expenditures Year Ending June 1963	
	Millions of Pounds ^a	Percent	Millions of Dollars ^a	Percent
Equipment & survival supplies ^b	£ 7.8	32%	\$ 35.7	28%
State or local grants ^c	7.9	32	27.5	21
Warning & monitoring operations ^d	2.0	8	14.8	11
Facility procurement ^e	1.9	8	11.6	9
Training (by national gov't) ^f	2.0	8	11.2	9
Research & Development ^g	0.5	2	11.5	9
Regional offices ^h	1.1	5	6.1	5
General administration ⁱ	0.9	4	4.8	4
Public information ^j	<u>0.3</u>	<u>1</u>	<u>4.9</u>	<u>4</u>
Total national government budgets ^k	£24.4	100%	\$128.1	100%
State and/or local expenditures ^l	<u>2.0</u>	<u>8%</u>	<u>30.0</u>	<u>23%</u>
Total public civil defense budgets	£26.4	108%	\$158.1	123%

Note: Footnotes appear on the following pages.

Footnotes to Table II

a. British expenditures were obtained from Civil Estimates 1963-64 and "Home Defence Expenditure" table on page 10, Statement on Defence, 1963, both documents published by HM Stationery Office, London, 1963. U.S. expenditures were obtained from U.S. House of Representatives, Independent Offices Appropriations Hearings for 1964, Part 3, page 955, GPO, Washington, 1963.

b. British stockpiling efforts include expenditures to obtain, store, and maintain general equipment and supplies by the Home Departments (£3.5 million) and by the Ministry of Public Buildings and Works (£0.4 million); to safeguard water supplies (£0.5 million) by the Ministry of Housing and Local Government; to provide medical and ambulance supplies (£0.4 million) by the Ministry of Health; to maintain emergency equipment and a strategic food reserve (£2.4 million) by the Ministry of Agriculture, Fisheries, and Food; to disposal activities in connection with a former strategic stocks program (£0.2 million) by the Board of Trade; to preparations for emergency communications (£0.3 million) by the BBC; and to miscellaneous activities involving equipment and materials (£0.1 million).

U.S. supply and equipment costs are primarily for the current Shelter Stocking program (\$32.7 million). Additional costs include those for emergency radio broadcasting equipment and modifications (\$1.5 million), and for a damage assessment computer (\$1.5 million). Costs for stockpiles of surplus foods and strategic commodities are not included in the OCD budget.

c. British local grants are provided for civil defense operations by the Home Office and Scottish Home Department (£6.8 million); for emergency water supply preparations (£0.3 million) and for evacuation planning (£0.3 million) by the Ministry of Housing and Local Government; for hospital, first aid, and ambulance training equipment by the Ministry of Health (£0.3 million) and for preparation of emergency local feeding plans by the Ministry of Agriculture, Fisheries, and Food (£0.2 million).

d. British warning and monitoring efforts are supported by the Home Office and Scottish Home Department.

U.S. expenses include those for warning and alert systems, purchase and maintenance of radiological fallout detection and monitoring equipment, and warning center staffs. Operating costs of the warning system (about \$2 million) are the responsibility of the Army and are therefore not included here.

- e. British facility construction costs are primarily for new oil storage facilities to provide emergency fuel reserves (£0.6 million) by the Ministry of Power; emergency features for railroad and dock facilities (£0.5 million) by the Ministry of Transport; and new training and control buildings and other structures (£0.8 million) by the Ministry of Public Buildings and Works.

U.S. new facility costs in FY 1963 were limited to public shelters provided through the Shelter Survey and Marking Program (\$9.3 million), and shelters provided in existing federal buildings (\$2.3 million). A reasonable average facilities expenditure is difficult to obtain because costs for fallout shelters and government control centers have been quite variable over the past few years, and expenditures for shelter in new federal buildings are included in the budgets of the occupying agency.

- f. British national government training efforts include general expenses (£0.6 million) and expenses for the Womens' Volunteer Services program (£0.8 million) by the Home Office and Scottish Home Department; costs for medical training (£0.2 million) by the Ministry of Health; and estimated costs of £0.3 million for training facilities and £0.1 million for miscellaneous purposes.

U.S. training efforts include \$10.1 million budgeted for "training and education," \$0.1 million for Red Cross assistance, and \$1.0 million for OCD personnel and other management costs directly related to training activities.

- g. British R&D includes an estimated £0.3 million spent by the Home Office and £0.2 million spent by the Ministry of Public Buildings and Works and miscellaneous other agencies.

U.S. costs include \$11.0 million specifically budgeted for R&D, plus an additional \$0.5 million of management expenses directly related to administration of the research program.

- h. British regional representation expenses include £0.8 million by the Home Office and Scottish Home Department, £0.2 million for facilities and rent by the Ministry of Public Buildings and Works, and £0.1 million for miscellaneous liaison efforts.

U.S. regional office expenses are included under the OCD "Management" budget; they amount to approximately \$4.5 million for personnel and \$1.6 million for facilities and services.

- i. General civil defense administrative costs in Great Britain include roughly £0.6 million of unallocated general administrative expenses of the Home Office and Scottish Home Department, £0.1 million in administrative expenses of the emergency health and welfare programs, and £0.2 million for facilities and rent.

U.S. administrative expenses are assumed to be all costs under the OCD "Management" budget category, except those which can be directly allocated to such functions as training, public information, regional offices, and warning activities. These residual costs amount to approximately \$3.5 million for personnel and \$1.3 million for facilities and services.

- j. British public information costs include about £0.2 million by the Home Office and £0.1 million in miscellaneous expenses by various agencies.

U.S. Public Information and Industrial Participation activities are grouped together under this category (\$4.4 million), and directly related personnel (\$0.4 million) and services (\$0.1 million) budgeted under "Management" are also included.

- k. Total British national government expenditures for the 1963-64 fiscal year are:

£23.0 million	Budget shown in <u>Statement on Defense, 1963</u>
0.9 million	Estimated Home Office and Scottish Home Department administrative expenses
0.5 million	Expenses offset by "Appropriations in Aid" income to the various agencies
<hr/>	
£24.4 million	Total national government costs

This expenditure was almost 20 percent higher than for the previous year. (The Statement on Defense stated that the 1962-63 fiscal year budget was only £19.4 million.)

U.S. expenditures for the 1962-63 fiscal year are as given in appropriations estimates presented to the Independent Offices Appropriations Subcommittee of the House of Representatives during budget hearings in 1964. Those estimates totaled \$128.1 million. Appropriations for the subsequent (1963-64) fiscal year were almost 15 percent smaller (\$111.6 million).

- l. Estimated British local government expenditures for civil defense as obtained during conversations with British government officials, are approximately £2 million per year. The latest available U.S. local expenditure figures are \$31 million for 1961, and expenditures have averaged about \$30 million for several years.

Table III

COMPARISON OF U.K. AND U.S. CIVIL DEFENSE COST RATIOS

	United Kingdom <u>(1963-64)</u>	United States <u>(1962-63)</u>
Public civil defense costs (national and local)		
As percent of military budget ^a	1.3%	0.3%
As percent of gross national product ^b	0.09%	0.03%
Per capita costs ^c	£0.50	\$0.83
In dollars @ \$2.80/£ conversion rate ^d	\$1.40	\$0.83
In dollars @ \$5.00/£ conversion rate ^d	\$2.50	\$0.83
Comparative per capita costs		
Assuming \$2.80/£ conversion rate ^d	1.7 to	1
Assuming \$5.00/£ conversion rate ^d	3.0 to	1

Note: Footnotes appear on the following page.

Footnotes to Table III

- a. Total civil defense budgets, £26.4 million and \$158 million, are given in the previous table. Gross military expenditures are £2,103 million for FY 1963-64 in the United Kingdom (Statement on Defence, 1963) and \$51.0 billion for FY 1962-63 in the United States (Armed Services Appropriations Hearings, FY 1964).
- b. GNP values were estimated to be £29 billion and \$570 billion, as projected from United Nations statistics for the average of 1960 and 1961.
- c. Populations in mid-1963 were estimated to be 53 million in the United Kingdom and 190 million in the United States. Estimates were projected at average annual growth rates (0.6 percent in the United Kingdom; 1.7 percent in the United States) from 1961 population estimates.
- d. Relative purchasing powers of the pound and dollar are difficult to estimate because the economic environments within which civil defense expenditures must be made are quite different for the two countries. Actual values of British expenditures must be considerably higher than the \$2.80/£ international exchange rate would indicate, since salaries and personal services are generally much less expensive in Great Britain. Average incomes in Britain are only about one-half those in the United States (equivalent to a \$5.60/£ ratio if average skills could be considered equal). The salary exchange ratio for engineers and scientists has been stated to be about \$8/£, and the ratio of research costs about \$6.30/£ (see Economic Review, No. 20, May 1962, page 21). However, these ratios are so high that technical personnel are moving from Britain to the United States in large numbers (resulting in the "brain drain"). Equipment and supplies tend to much more closely reflect exchange rates; they are about as expensive in the United Kingdom as in the United States. These items make up almost half of civil defense budgets.

All told, the true relative purchasing power probably lies somewhere in an intermediate position between the \$2.80/£ exchange rate and an upper limit of \$5.00/£.

Appendix A

EQUIPMENT AND FACILITIES

Description of equipment and facilities in the British civil defense program was not a major objective of this report. Nevertheless, some information was obtained which could be of interest to U.S. technical and planning officials. Such material is included in this appendix.

Control Centers

Underground control centers for civil defense operations have been completed and equipped at the regional and national level in the United Kingdom. Many of these centers are control centers and shelters remaining from World War II. The British government provides subsidies to local government for construction of local control centers, but control centers at the local and sub-regional levels are less complete than those at higher levels.

The Royal Observer Corps maintains a separate set of operating posts and headquarters, all of which are protected from fallout. These facilities have the following features:

The 1,560 Observation Posts of the ROC hold four people each and are equipped to remain self-sustaining for a period of from three to four weeks. The cost of these shelters was given as £1,600 (\$4,500 by exchange rate). They include a chemical toilet, hand sirens, shadow graphs for observation of nuclear detonations, and a natural ventilation system.

Twenty-nine Group Headquarters house 50 to 60 people each and are equipped for three to four weeks' self-contained use. They were originally built for the RAF Interceptor Control in 1952 at a cost of about £1 million each. They were later adapted for civil defense purposes.

The six Sector Headquarters of the network are manned entirely by government employees who volunteer for duty and can be quickly

mobilized. Their total capacity is 100 to 120 people each. These headquarters were originally built during or shortly after the war.

Shelters

Pilot shelter surveys have been carried out to ascertain what degree of protection could be obtained in homes or other buildings that could be used as shelter. These surveys are currently being extended, with the hope of eventually covering the entire nation (as in the U.S. Fallout Shelter Survey). Meanwhile, provisional plans for the use of ordinary buildings have been prepared on the assumption that the protection factor that most people would be able to obtain without extensive adaptations (except for blocking of windows) would be on the order of 40. Many buildings of common construction in the United Kingdom have this protection factor.*

Observation Equipment

Each of the 1,560 Observation Posts of the Royal Observer Corps has a series of instruments for reading damage assessment information. These include:

1. Ground zero indicator--A rugged drum-shaped instrument consisting of four pin-hole cameras pointing in four directions. A nuclear burst in any direction will record on sensitized paper inside the instrument a mark that will indicate bearing and elevation of the burst. The power of the weapon can be estimated from the diameter of the mark if the distance to ground zero is known.
2. Bomb power indicator--A pressure gauge instrument that records on a dial the blast peak overpressure. This also gives an indication of the weapon size if distance is known.

* Mr. D. T. Jones, Scientific Adviser in the Home Office, has recently published the results of his study of protection factors in the United Kingdom. His report is titled, Shelter against Radioactive Fallout, Civil Defense Committee Working Party on Shelters, NATO Document AC/23(CD)/450, September 1963.

3. ROC fixed survey meter--A remote reading radiation dose rate meter capable of reading to a maximum of 500 Roentgens per hour. The ion chamber is fixed in the open and connected by a flexible cable to a meter that is situated inside the shelter.

Warning Systems

The network for disseminating warning in Great Britain is shown in Figure A-1. Warning can be received by several indications. Strategic and operational information may be obtained through intelligence sources or from field units, or from aircraft on patrol. (Apparently the British do not have any provision for using warning from their volunteer Royal Observer Corps members even though one of the presumed duties of this organization is to watch for hostile aircraft.) Information could also be obtained from NATO or from individual friendly countries. However, the primary reliance is on BMEWS and other radar and electronic indicators.

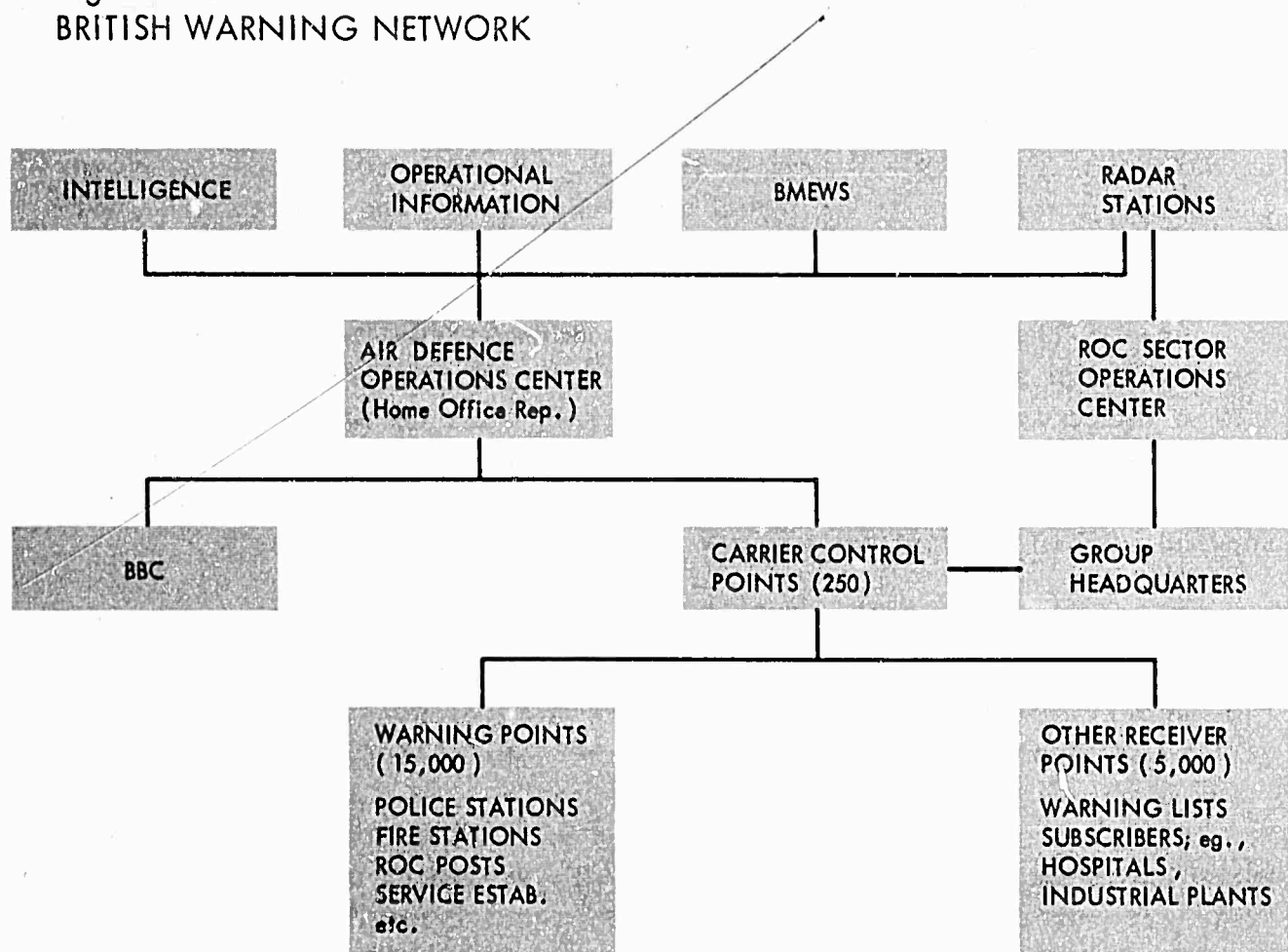
Any of these indicators would be transmitted through the military communication system to the Royal Air Force Air Defense Operations Center. A Home Office representative is on duty at this Center at all times, and in the event of an imminent threat could disseminate the warning. He is directly connected with the British Broadcasting Corporation and could send out radio and television warnings through this contact.

The Air Defense Operations Center is also directly connected to some 250 Carrier Control Points installed in major police stations throughout the country. Warnings to these carrier control points are sent out by a "line broadcast system," using wire or cable lines.

From each carrier control point, simultaneous warnings can be distributed to all warning points and to other warning list subscribers in their carrier control area. A unidirectional carrier line broadcasting system is superimposed upon the local telephone cable system to provide this warning.

The telephone receiver equipment at each warning point is approximately the same size as a normal household phone. It contains its own batteries and includes a loudspeaker. It can operate simultaneously with normal telephone service. The carrier broadcasting system is capable of delivering four types of messages: a monitoring signal, two types of alerting signals, and spoken messages. The system is being developed so that sirens may eventually be operated directly from the carrier control point.

Figure A-1
BRITISH WARNING NETWORK



Source: Adapted from official publication, "United Kingdom Warning and Monitoring Organisation."

Warning points are the places from which warnings to the public will be issued. They are equipped in heavily populated areas with power-operated sirens and in less populated areas with hand-operated sirens. The British siren system is said to reach 94 percent of the population. Other methods of warning the population available for different signals include gongs, whistles, and "maroon" (a system of warning bombs exploded in the air). Warning points are located at Royal Observer Corps posts, police stations, fire and coast guard stations, armed services facilities, and at certain other places that are manned either 24 hours per day or could be swiftly manned in an emergency.

Within each Royal Observer Corps sector, there is a direct connection from the operations center to local radar stations. Thus, if the national system should break down, local warnings would still be available through the contact with local military warning facilities.

Communications

The British Post Office Department is planning a series of measures to safeguard its telephone system against attack. Some of the measures have already been implemented.

1. The Post Office Department has virtually completed a program to provide telephone cables bypassing population centers. It has also put in a radio relay system as a backup for defense purposes (this is partially completed), and has initiated a program to make repeater equipment independent of the public power supply (only the biggest exchanges have this stand-by power so far).
2. It has developed a preference scheme for telephone use in emergencies. This scheme has progressed through two stages of development--the first was to maintain one-third of the outlets in an emergency. This stage did not require too much equipment or operational control, and was relatively easy to implement. However, it appeared to be completely inadequate to prevent system saturation in the event of a nuclear attack, and a more rigorous system was felt to be necessary. The second stage was to reduce the number of preference users to between 1 and 5 percent of the total telephone outlets. This portion of the telephone system could be maintained for about five days with its reserve battery supply. After five days it would have to use mobile generators. Provisions for the preference scheme have

been completed in the larger exchanges, but the smaller ones have not yet completed the program.

Two problems have been unresolved in the preference schemes: the first is the problem of maintaining an up-to-date preference list. Maintaining a valid list of even 1 percent of the subscribers for emergency preference is a monumental task. The second problem is the question of when to implement the preference system in an emergency. If implementation is delayed until after the telephone system is saturated, the preference system cannot be put into effect. On the other hand, if the preference system is triggered too early, it may cause a number of false alarms, with resultant law suits and bad public relations. The system has not been developed to the point where it could be put into operation from remote switching facilities.

3. The Post Office Department is installing manually switched service facilities with fallout protection in about 50 locations. With this system, it could continue to operate the nationwide telephone network under emergency conditions. Important command headquarters will be connected to one or more of these switching centers. Command headquarters are provided with secret numbers that can be dialed directly by people in the know.
4. For vital command and control and other governmental circuits, some telephone routes are permanently engineered for several alternative circuits to provide redundancy for emergencies. Where only one circuit is normally rented between installations, alternative routings can be substituted if the primary routing is rendered inoperative. In addition, microwave radio backups are provided for defense facilities as well as for TV transmission and commercial purposes. However, the microwave facilities would be somewhat vulnerable to blast, and this problem has not been solved by the Post Office Department.

Other Significant Items

Certain types of civil defense equipment and facilities have been emphasized to a greater extent in the United Kingdom than in the United States. For example, rescue vehicles equipped with cranes, ropes, ladders, and other tools have been issued to the Civil Defence Corps rescue sections of local jurisdictions for several years.

Another area of greater "hardware" emphasis in the United Kingdom is for training devices, equipment, and facilities of all types. Capital expenditures for these items in local facilities are relatively much greater than in the United States.

The national government pays for 75 percent of the construction of local training facilities. These facilities typically contain a store-room, garage, canteen (an important incentive for recruitment), classrooms, and sometimes outside training grounds. Local training grounds are usually provided on about one-half acre, which is used for rescue and similar training purposes. Larger sites of 6 to 10 acres are provided in regions for combined operational exercises.

The cost of the smaller local training grounds averages about £5,000 (roughly \$15,000) each, and the larger regional training grounds average around £60,000 (\$180,000). In total, the national government spends around £1 million a year for construction of training facilities and training grounds. One-third of this, or £300,000 per year, is spent by local authorities.

Appendix B

NEWSPAPER ADVERTISEMENTS FOR RECRUITING CAMPAIGNS

As part of an annual recruiting publicity campaign, British Civil Defence authorities ran a series of advertisements in six of the country's largest newspapers (with a total circulation of 48 million) last fall.

The 1963 campaign cost £60,000. It was aimed at two objectives: (1) to give the public a greater insight into the structure, size, and purpose of the country's civil defense effort; and (2) to exploit the interest thus aroused to press home an appeal to join the civil defense services.

The campaign was divided into two phases. Phase I was an initial full-page advertisement. This advertisement, "A Report on the State of Civil Defence Today," is shown below. The purpose of the Phase I ad was to make clear the need for civil defense, and to explain the extent of plans and preparations. The advertising managers believed that this could not be done by slogans or pictorial presentations, but that it would require writing at some length in a thought-provoking way.

The Phase I advertisement was designed to explain to the public what a nuclear attack might entail, how home defense preparations were progressing, what the role of civil defense is in the context of the country's over-all defense preparations, and why its humanitarian aspects are important.

Phase II consisted of a series of four follow-up advertisements of quarter-page size. The first of the Phase II advertisements (which is identical to the other three follow-up ads except for illustrations) is shown at the end of this appendix. Phase II featured some of the little-known aspects of civil defense preparations as a means of stimulating interest in the general theme and in volunteer participation.

As a convenience for following up on individual interest, the Phase II advertisements included coupons inviting inquiries and asking for volunteers. The phrase "Ask how to join" was used to convey the idea that civil defense members must be people of high caliber.

Although results of the 1963 advertising campaign were not available at the time of this study, similar advertisements with return coupons in earlier years had resulted in an annual response of 4,000-6,000, with about 1,000 of the respondents subsequently enrolling in the civil defense services each year. Another indicator of the success of the over-all recruiting campaign is the fact that about 40 percent of all civil defense volunteers join during the fall.

Figure B-1



Britain's Civil Defence organisation is growing steadily in strength and efficiency. But how much do you personally know about it?



A REPORT ON THE STATE OF CIVIL DEFENCE TODAY

EACH AUTUMN, throughout the country, Civil Defence chiefs ask for more volunteers to man its various divisions. Why do we need Civil Defence? What could it do? Is it worthwhile?

The Government has made detailed scientific studies of the probable effects if a nuclear attack was made on Britain. The picture is a grim one. Parts of the country—perhaps large parts—would suffer enormous and immediate devastation. The toll of human life would be on an almost unthinkable scale.

The actual number of casualties would depend upon the weight and distribution of the attack, and other unpredictable factors, such as the weather. But it is the firm conclusion of leading scientists that large areas would escape devastation. And millions of people would survive.

Facing up to facts

What would happen to them all? How would they manage without the necessities that we take for granted in peace-time? These are questions that any responsible government must ask itself, so long as there is the slightest risk of war. In Britain we have done more than ask the questions: we have gone a long way towards finding answers. Nor are we alone in making civil defence preparations. Many other countries, whether or not they possess nuclear arms, are doing so.

For convenience, all preparations against nuclear attack can be lumped together under the simple title "Civil Defence". They involve almost every aspect of national life. And, since we cannot know exactly where an attack might fall, or how heavy it might be, they have to be on a national scale.

The reason why

No civil defence preparations could do anything to reduce the inevitable destruction of a nuclear attack. They are not intended to do so. Civil Defence is a humanitarian operation. Without it, more people—perhaps millions more—would die than need have done.

More would suffer from injury and illness than need have done.

There would be little chance for the millions of survivors to fight the long struggle back to a reasonably safe and ordered way of living.

Like the ship's lifeboat, or the pilot's parachute, Civil Defence is an insurance policy taken out and paid for now to provide vital relief for those who would survive a nuclear attack.

What would happen?

Whatever targets were chosen, a nuclear attack on this country would create large tracts of total devastation. Electricity, gas and

water supplies would be disrupted, transport dislocated and the telephone system disorganised. All this damage would be immediate. On top of it would be the hazard of radiation, desperately dangerous at first, but diminishing as the days passed.

If you imagine Britain divided into a number of undamaged patches (some as large as several counties), around which are rings of more or less complete devastation, you will have some idea of what the country would look like after an attack. Inside these undamaged areas there might or might not be power supplies. But there would certainly be transport and food. In some places, people would be able to move about freely. In others, radioactive fallout would make all movement impossible for a time.

Britain would not be helpless

It is probable that all you have seen of Civil Defence is the volunteer unit in your locality. And vital it is too. But behind the volunteer civil defence services is a complex organisation covering the whole country with a closely woven mesh of emergency administrative and technical services and their communications. Some of these are for giving warning of attack and of fall-out. Others form the chain of control which would be vital both during and after attack.



ENTRANCE TO AN UNDERGROUND ROYAL OBSERVER CORPS POST.

Assessing the situation

Not far from you, wherever you are at this moment, there is a small concrete pill-box buried below ground. It contains instruments for plotting the position and height of explosions, measuring their power and the

intensity of radiation from fall-out. There is one of these Royal Observer Corps posts every 5/10 miles—more than 1,400 of a planned 1,500 have already been completed. Each is linked to one of 29 Royal Observer Corps Group Headquarters which in turn report to one of six Sector Operations Centres. This organisation will originate warnings of air attack and of fall-out to the public and pass information to the regional headquarters, and to similar headquarters in Scotland, which form part of the emergency chain of control.

How would we get organised?

Parliament has made provision over the years for these preparations. The emergency chain of control, extending from the headquarters from which Regional Commissioners would operate in a war emergency to the war-time headquarters of local authorities, is an essentially civilian organisation. Its task would be to control life-saving operations and, after attack, to marshal surviving resources and vital public services, and to see that they were put to the best use. It is linked with emergency arrangements for food, water, power, oil, medical supplies and transport.

Information would stream in, through local and other authorities, from hundreds of Civil Defence and observation posts. From some posts there would be only a grim silence. But this, too, would be important in realistically assessing the situation, good or bad.

It all depends on them

It is the men and women of the Civil Defence Corps who would provide the vital information. They would man the control organisation in the cities and counties. And they would carry out many of the most important jobs.

Every year Civil Defence stages hundreds of exercises. The men and women of Civil Defence know exactly what they would have to do, the size of the jobs they would have to tackle, and the dangers they would have to face. There are over 500,000 of them, doing spare time work that's not easy and may never be needed. Why do they do it?

Because they know that good intentions are not enough. Because they'd rather be among the helpers than the helpless.

Isn't that where you'd rather be, too?

HOW YOU CAN HELP

WARDEN A job for men and women who are born leaders. A Warden needs to know his district, and its people like the back of his hand. He is the front-line link in Civil Defence's chain of command.

RESCUE A team job for physically tough, intelligent men who can work skilfully, without wasting time, in dangerous conditions.

HEADQUARTERS This needs quick-witted people who can sum up a situation and act on it. Some Headquarters staff man mobile headquarters; some operate radio and field telephones. Others provide and assess technical and scientific information.

AMBULANCE AND FIRST AID They provide immediate medical care before doctors and surgeons take over. If you have courage and compassion, this could be your place in Civil Defence.

WELFARE Food, shelter, clothing, information, care and kindness—the frightened and the homeless would need these just as much as medical aid. The Welfare Sections of Civil Defence are there to provide them.

AUXILIARY FIRE SERVICE Trained to fight even the terrible fires that would rage after a nuclear attack, the AFS is for the strongest and bravest men but there are some jobs in it for women too.

INDUSTRIAL CIVIL DEFENCE This is to industry what the Civil Defence Corps is to the nation. It is organised in much the same way as the Corps. If there is an industrial Civil Defence unit where you work, there's a place for you in it.

THE ROYAL OBSERVER CORPS The volunteer men and women of the R.O.C. are controlled by RAF Fighter Command. Their most important job would be to man the network of warning and monitoring posts, and flash information back to H.Q.s in Britain and in the NATO countries.

WOMEN'S VOLUNTARY SERVICE FOR CIVIL DEFENCE Members of the W.V.S. can enrol as auxiliaries in the Welfare Section. For women who aren't able to join the Civil Defence services, the W.V.S. offers a wonderful opportunity to learn how to protect themselves and their families in an emergency.



AT A CIVIL DEFENCE HEADQUARTERS: MODERN METHODS AND SKILLED PERSONNEL.

In one of these sections there is a job that you can do. To be in Civil Defence means giving up some of your spare time to learning the basic, scientific facts of nuclear war, and training for the role you would play if war should ever come. What you will be asked to do won't always be easy. But it will be important. You will find interest, companionship, and the satisfaction of doing a vital job.

For further information about the various sections of Civil Defence and details of how you can join, write for a booklet to:

THE HOME OFFICE (P.O. BOX No. 327)
DN1, WHITEHALL, LONDON, S.W.1.



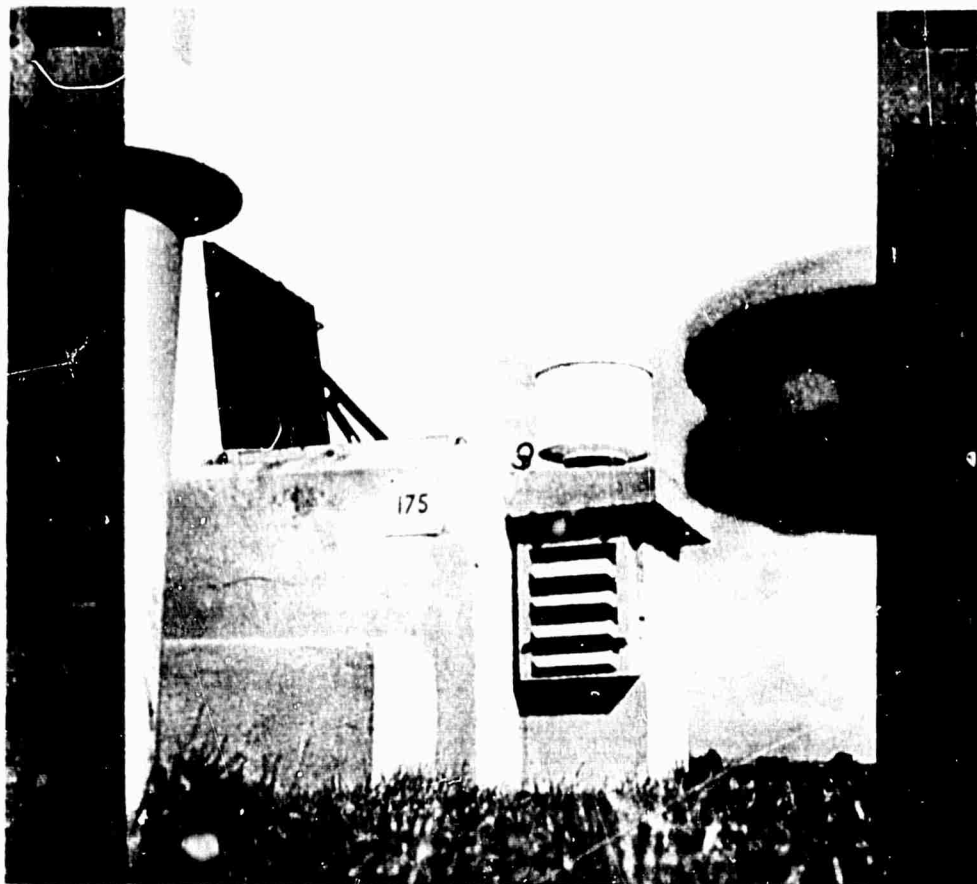
PART OF THE NATION-WIDE SYSTEM OF EMERGENCY COMMUNICATIONS.

10 VITAL POINTS IN THE CIVIL DEFENCE PLANS FOR BRITAIN

- 1 War-time regional headquarters have been provided and equipped in England and Wales, and similar centres in Scotland. From them, an emergency chain of control extends to the local authorities.
- 2 For essential needs—food and agriculture, water supply, electricity, gas, oil, coal, transport and shipping, broadcasting and communications—there are emergency organisations to link closely with the emergency control structure.
- 3 A chain of self-supporting broadcasting transmitters is being built.
- 4 Important telephone cables are being re-routed away from the big population centres, and special radio links installed to bridge gaps that might be caused by bombs.
- 5 A national warning system has been installed to give the public clear warning of any attack.
- 6 Over 1,400 of a planned 1,500 underground Royal Observer Corps posts have been equipped with instruments for measuring nuclear explosions and fall-out.
- 7 Alternative water supplies from deep wells have been pinpointed. Stand-by water pumping and piping equipment is being installed.
- 8 Essential foods have been stockpiled.
- 9 Strategically sited around the coast, away from likely target areas, emergency moorings have been prepared and cargo equipment stockpiled to handle shipments of food and other emergency supplies.
- 10 Reserve supplies of fuel oil and medical equipment have been stockpiled.

Figure B-2

THE FIRST OF THE FOUR PHASE II ADVERTISEMENTS



The entrance to an underground Royal Observer Corps post

Behind the scenes in Civil Defence



The Civil Defence organisation exists for one reason only - to bring relief to the millions who would survive if a nuclear attack was made on this country.

The suffering inflicted on our people by an enemy attack would be enormous. So would the damage to all vital national services. But many people could be saved and their suffering reduced. The role planned for Civil Defence is nothing less than to provide the organisation and the leadership that would make life possible for the survivors.

The Civil Defence organisation already exists. All over the country, means of saving lives and repairing damage have been made ready. But plans depend upon people. And so Civil Defence has need of people, men and women of courage and determination to carry out difficult and sometimes dangerous tasks.

Suppose you were among the survivors of a nuclear attack, where would you (they) be - with the helpless or the helpers? By joining one of the branches of Civil Defence now you can be certain that you would be making the best use of your brains, your strength and your spirit. You would have something real and valuable to offer to people in desperate need. As a Civil Defence volunteer you would learn the true facts of nuclear war. You would play your part in an organisation where the problems of survival are being tackled right now. Think about it. The Civil Defence Service are 500,000 strong. All are volunteers, men and women who realise that good intentions are not

enough, and so have decided to acquire the special knowledge and skills that might one day be needed to help their countrymen. They are war-dens trained to lead others; rescue and demolition teams; intelligence and communications experts; scientists with special knowledge of radiation; firemen of the A.F.S. drivers for ambulances and first aid services; welfare workers; industrial Civil Defence teams. In one of these services there is a part-time job for you. Find out more about Civil Defence by filling in and sending this coupon for a free copy of the new Civil Defence booklet which explains in detail the whole organisation of Civil Defence, and the vitally responsible work its members are doing today. Or call at your local Council Office.

CLIP THIS COUPON NOW

TO THE HOME OFFICE (P.O. BOX NO. 121, WHITEHALL, LONDON S.W.1)

Please send me a free copy of the new Civil Defence booklet

Mr., Mrs., Miss (Block Capital)

Address (Block Capital)

DA 2 200 1 317 2

ASK HOW YOU CAN JOIN
CIVIL DEFENCE

STANFORD
RESEARCH
INSTITUTE

MENLO PARK
CALIFORNIA

Regional Offices and Laboratories

Southern California Laboratories

820 Mission Street
South Pasadena, California 91031

Washington Office

808-17th Street, N.W.
Washington, D.C. 20006

New York Office

270 Park Avenue, Room 1770
New York, New York 10017

Detroit Office

1025 East Maple Road
Birmingham, Michigan 48011

European Office

Pelikanstrasse 37
Zurich 1, Switzerland

Japan Office

Nomura Security Building, 6th Floor
1-1 Nihonbashidori, Chuo-ku
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